TIVM COMPRESSOR/EXPANDER/MOTOR DEVELOPMENT AND DEMONSTRATION

CONTRACTOR: MECHANOLOGY, LLC

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PROJECT DURATION: FOUR YEARS

TOTAL ESTIMATED FUNDING: $2,735,000

MECHANOLOGY

TIVM COMPRESSOR/EXPANDER/MOTOR DEVELOPMENT AND DEMONSTRATION

Technical Goals and Objectives:

Develop a TIVM CEM that Satisfies the DOE

Guidelines for : Technical Performance,

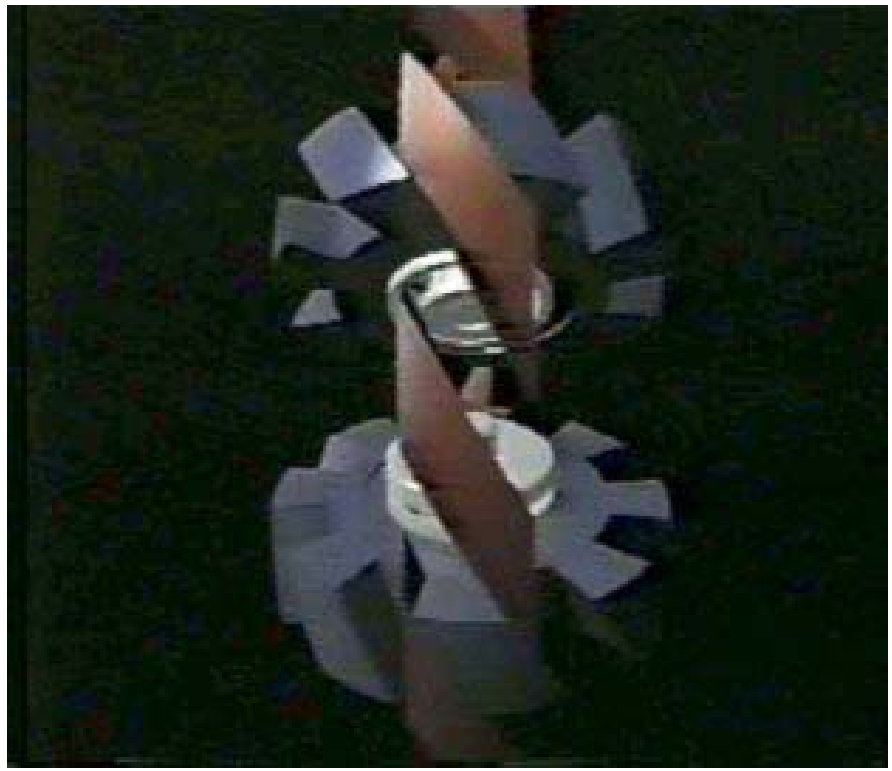
Packaging, and

Cost

Deliver an Integrated CEM Prototype to DOE for Independent Testing

MECHANOLOGY

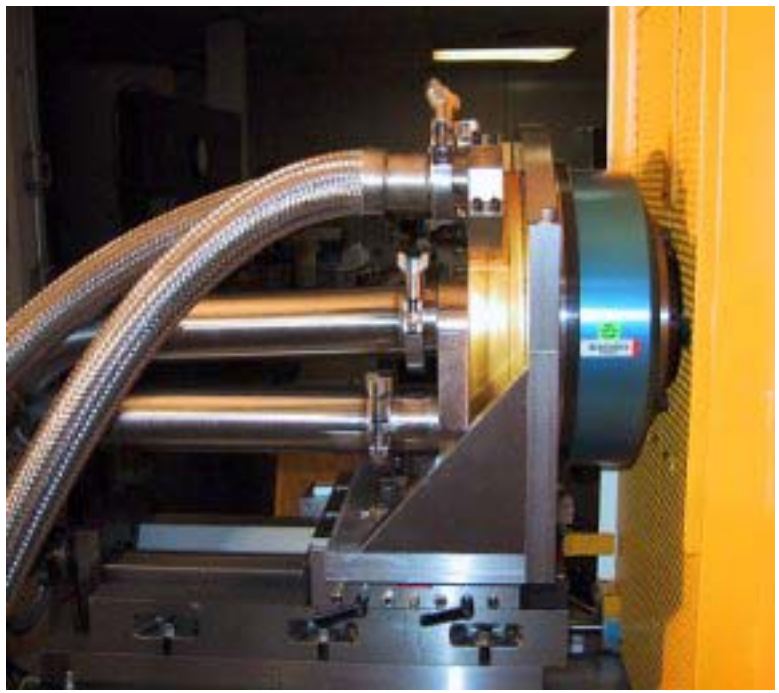
THE TOROIDAL INTERSECTING VANE MACHINE (TIVM) CONCEPT



POSITIVE DISPLACEMENT, ROTATING, THERMODYNAMIC OPTIMUM

MECHANOLOGY

THE TOROIDAL INTERSECTING VANE MACHINE (TIVM) CONCEPT



MECHANOLOGY

PROJECT WORK PLAN AND SCHEDULE

GFY 2002 - EVALUATE AND TEST DESIGN OPTIONS FOR SEALS, PORTING, FRICTION CONTROL

GFY 2003 - INCORPORATE SELECTED OPTIONS INTO TIVM PROTOTYPE AND TEST

- GO/NO GO DECISION BASED ON SEALING AND FRICTION CONTROL

GFY 2004 – INTEGRATE MOTOR AND TEST PERFORMANCE

GFY 2005 – REFINE DESIGN, BUILD PROTOTYPE AND TEST

- DELIVER INTEGRATED CEM TO DOE

MECHANOLOGY

PROJECT TECHNICAL SUCCESS CRITERIA

PRODUCE PRESSURE AND FLOW PER DOE GUIDELINES ACROSS FULL OPERATING RANGE

DRIVE POWER LESS THAN 4.3kWe AT FULL POWER AND PROPORTIONALLY LESS AT PARTIAL POWER

ACCEPTABLE SIZE AND WEIGHT

COMMERCIALLY VIABLE PROJECTED HIGH VOLUME COST ($100’S)

COLLABORATION AND COOPERATION OPPORTUNITIES

ADDITIONAL EXPERTISE IN

- LOW FRICTION AND WEAR MATERIALS AND COATINGS
- DYNAMIC SEAL OPTIMIZATION

MECHANOLOGY